

**Title:**

Three Decades Differential Scanning Calorimetry Research on Proteins in IBB

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Abstract:

Biological activity of protein depends on their proper structure and stability. Study on protein stability has attracted many scientists. There are various methods to drive the thermodynamic parameters of proteins. Differential Scanning Calorimetry (DSC) is unique and powerful tool which directly measures the thermodynamic parameters of proteins. Ordinary, thermodynamic parameters are driven based on assumption that there is equilibrium between folded and unfolded state of protein. It is well known that this hypothesis is not valid for most of proteins and their unfolding is an irreversible process. From this point of view protein unfolding is kinetically controlled process. For irreversible proteins, DSC thermograms are obtained at different scanning rates and protein concentrations. Then curves are analyzed by fitting the data to theoretical equations for the dependence of the excess heat capacity on temperature. In our lecture will have an overview on three decades DSC research on different proteins in Biophysical Chemistry Lab (www.ibb.ut.ac.ir/bcl) at IBB.

Keywords: Biological activity, Differential Scanning Calorimetry, irreversible proteins

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